REMARKS

Claims 1-8 and 10-32 are pending in this application. Claims 1, 18, 19 and 24 were previously presented. Claims 2-8, 10-17, 20-23 and 25-32 are original claims. Claim 9 was previously cancelled. Claims 19-32 are allowed.

Claims 1-8 and 10-18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Lumb et al. U.S. 5,312,667 in view of Fujiwara JP 09-087901A. These claims have also been rejected under 35 U.S.C. 103(a) as being unpatentable over Lumb et al. '667 in view of Toshio. These rejections are respectfully traversed.

The Examiner acknowledges that Lumb et al. '667 does not disclose the use of particles of a refractory compound embedded within the yarn fibers of an inner fabric layer. However, the Examiner asserts that the artisan would have combined the teachings of Lumb et al. '667 with those of Fujiwara or Toshio to reach the claimed invention. Applicants respectfully disagree.

Neither Fujiwara nor Toshio provides any teaching, or suggestion, that could lead an artisan to include refractory particles in an inner fabric layer having a surface area enlarged by a raising process for creating air spaces to enhance insulation performance and for reducing contact of the inner fabric layer upon a wearer's skin, as claimed.

Both of the prior art JP references (Fujiwara and Toshio) teach fabrics in which the refractory particles are held in close proximity to the wearer's skin. In Fujiwara, the fabric is a very thin stocking fabric, so the entire fabric body is in close proximity to the skin. In Toshio, the fabric has a pile surface with fiber tips split at their ends. Refractory particles are sprayed or otherwise coated onto these fiber tips. Due to the inherent nature of pile fabrics, the solution containing the refractory particles remains at or close to the surface, with only minimal penetration into the pile. This is confirmed by Toshio's repeated statements that the refractory particles are applied to the "fiber tips." The concentration of refractory particles at the fabric surface, in close proximity to the wearer's skin, results in immediate reflection of radiant heat from the wearer's skin directly back to the wearer's skin.

In contrast, in the Applicants' present invention, the refractory particles are spaced from the wearer's skin, resulting in an air space between the refractory particles and the wearer's skin

that traps heat and enhances insulation. In Applicant's invention, refractory particles are embedded in the fibers located throughout the inner fabric layer. During the raising or fleecing process, the volume of the inner fabric layer is enlarged in the region of the raised surface, which results in formation of a layer of air pockets in the region of the fiber tips, adjacent the wearer's skin. Fibers nearer the fabric base are relatively more dense and thus contain a relatively greater proportion of the refractory particles, e.g., as compared to the less dense regions of pile in contact with the wearer's skin. As a result of this arrangement, heat radiating from the wearer's skin is caused to pass through the air pockets in the region of the raised surface, to the relatively more dense region of fibers nearer the fabric base, where the relatively greater proportion of refractory particles reflects the radiated heat back through the air pockets in the region of the raised surface, to the wearer's skin. Air captured within the layer of air pockets in the region of the raised surface is warmed by passage of the radiated heat therethrough, in both directions, thereby creating an improved insulation effect for the wearer that is not to be found in the fabric constructions of Fujiwara and Toshio. Moreover, because the refractory particles are embedded in the fibers, rather than coated on the surface, the particles do not create a thermally conductive layer at the fiber surface that could result in undesirable conductive heat loss.

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Respectfully submitted,

Date: October 29, 2003

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